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PSEUDORABIES (AUJESZKY'S DISEASE)

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PSEUDORABIES (AUJESZKY'S DISEASE)

Animal Group(s) Affected	Transmission	Clinical Signs	Severity	Treatment	Prevention and Control	Zoonotic
Swine are the only natural hosts of the virus. However, it affects a wide range of mammalian hosts, excluding humans and some non-human primates.	Primarily through venereal route or horizontal transmission via oral, nasal, digestive or reproductive mucosa. Other potential methods of transmission include mechanical (via fomites or vehicles) and viral aerosolization.	Pyrexia, depression, anorexia, tremors, incoordination, vomiting, ptyalism (foaming), blindness, convusions, coma, and death.	High and low virulence strains are known. Disease is highly virulent and often 100% fatal in susceptible non-suids.	No treatment is available. Surviving animals are infected for life.	Vaccination is available with regulatory permission and is effective at reducing clinical signs. Infected operations are quarantined and infected animals removed. Feral swine may be monitored to identify high risk areas.	No.

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Susceptible animal groups: Domestic and feral swine are the primary hosts but disease can be transmitted to other mammalian species. The virus is known to infect deer, foxes, raccoons, skunks, bears, rats, coyotes, mink and panthers. Cattle, goats, dogs, and cats also are susceptible to the disease. Experimental infection has been seen in rhesus monkeys, marmosets and several bird species.

Causative organism: Pseudorabies also referred to as Aujeszky's disease is caused by Suid herpesvirus 1 *Varicellovirus* in family *Herpesviridae*.

Zoonotic potential: None

Distribution: Pseudorabies occurs worldwide, but has virtually disappeared from domestic pigs in several parts of Europe, Great Britain, and New Zealand. US implemented an eradication program and as of 2004, all commercial swine were considered pseudorabies-free. However, pseudorabies is considered endemic in US feral swine.

Incubation period: Typically 2-6 days and suckling pigs have shorter incubation period of 48 hours.

Clinical signs: Clinical signs are variable and morbidity and mortality decreases with increasing age in swine. Pregnant sows may abort or have stillborn young, whereas newborn piglets may present with neurologic disease or high mortality rates especially in piglets from herds with no prior exposure. Weaned pigs present respiratory illness with fever, anorexia, and weight loss. Sneezing, rubbing of the nose and coughing may occur with or without trembling and incoordination. Adult swine can exhibit mild respiratory distress, fever during acute infection. Surviving individuals become lifelong carriers of the virus while exhibiting minimal to no further clinical

PSEUDORABIES (AUJESZKY'S DISEASE)

signs. In swine, the virus may become latent in cranial nerve ganglia, may recrudesce and shed live virus months later. Reproductive failure also can present.
Pseudorabies is virulent in susceptible animal species, which often experience intense pruritus or "mad itch" which causes them to scratch and bite themselves. Other clinical signs include respiratory problems, general neurologic signs, weakness, convulsions, and fever. Mortality is nearly 100% in these situations.

Clinical pathological, gross, and histopathological findings: Gross lesions are minimal or absent, and none are pathognomonic. Serous or fibrinonecrotic rhinitis may be found. Tonsilar inflammation may be observed as fibrinous exudate or an erosive fibrinonecrotic lesion. Small (<1 mm), pale foci in liver and/or spleen appear as slightly irregular or with vague edges, and not a crisp, well-demarcated appearance; in young piglets, liver lesions are more common than in adults but occur only occasionally. Reddened foci may be scattered on the pleura of the lungs and with or without pulmonary edema, congestion, or consolidation. Non-suppurative meningoencephalitis is noted upon examination of white and gray matter; mononuclear perivascular cuffing; neuronal necrosis; thickened meninges.
In non-suid species, edema, congestion and hemorrhage in the spinal cord have been noted. These lesions are usually found in the portion of the spinal cord that innervates the area of pruritus. Microscopically, cellular infiltration and neuronal degeneration is seen. CNS lesions are similar to those found in pigs, but milder in severity.

Diagnosis: Serologic tests for virus or antibody detection are available and include serum neutralization (SN), latex agglutination (LA), and enzyme-linked immunosorbent assay (ELISA). A fluorescent antibody test on tissue sections, immunohistochemistry on formalin-fixed tissues, or virus isolation may be used to identify virus in the brain, tonsils, and spleen. A polymerase chain reaction (PCR) test has been described but is not in common use.

Material required for laboratory analysis: Serum or tissue with brain, tonsils, spleen and lung are preferred tissues for diagnosis in suids. Diagnostic samples should be kept cold for virus isolation submission.
Nasal swabs, or samples of oropharyngeal fluid or tonsil tissue from suspected porcine can be used for virus isolation. The virus may also be found in the lung, spleen, liver, kidney, or lymph nodes. In other species, the virus may be isolated from the pruritic area of the skin, and from the spinal cord area innervating the pruritic area.

Relevant diagnostic laboratories: Most diagnostic laboratories can test for pseudorabies.

Treatment: No treatment is available.

Prevention and control: Vaccination can be effective at preventing and controlling outbreaks in domestic swine; permission must be obtained from state animal health official for vaccine usage. State and Federal regulations prevent movement of infected pigs and monitoring to identify newly infected animals. Since feral swine are a known reservoir, measures are taken to prevent contact between feral and domestic swine. Infected domestic herds are placed under quarantine. Infected animals movements are controlled and regulated. In severe cases depopulation followed by disinfection and 30 days with no animals is a method of control.
The risk to zoological animals exists from biosecurity breaches allowing infected feral swine (reservoirs) or other wildlife from coming into contact with zoological animals. Sound biosecurity measures are highly effective in preventing introduction into zoological facilities.

Suggested disinfectant for housing facilities: PRV is susceptible to inactivation by sodium hydroxide, bleach, iodine-based products, phenolic disinfectants, quaternary ammonium compounds, formaldehyde, and chlorhexadine. These disinfectants are not effective unless contaminated objects have been thoroughly cleaned before the disinfectants are applied. PRV is also susceptible to thermal inactivation.

Notification: Pseudorabies is a notifiable disease only when found in commercial production swine.

Measures required under the Animal Disease Surveillance Plan: http://www.aphis.usda.gov/vs/nahss/

PSEUDORABIES (AUJESZKY'S DISEASE)

swine/prv/prv_surveillance_plan_final_draft_04_16_08.pdf for current National Surveillance Plan. Proposed changes Veterinary Services National Surveillance Plan under review in 2013 http://www.aphis.usda.gov/animal_health/animal_dis_spec/swine/downloads/manage_swine_bruc_n_pseu_virus_10-086-1_concept.pdf. .

Measures required for introducing animals to infected animal: Do not introduce non-infected animals to infected animals; animals should be tested prior to moving them and prior to introducing to known disease-free animals.

Conditions for restoring disease-free status after an outbreak: In commercial swine herds, quarantine, animal testing and removal from herd will be under the direction of an Accredited veterinarian. Premises should be disinfected and left vacated for at least 30 days following removal of infected animal.

Experts who may be consulted: Federal and state veterinary authority (AVIC and state veterinarian, respectively).

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